SEVERE LOCAL STORMS, DECEMBER, 1928

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the Annual Report of the Chief of Bureau]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Salisbury to Princess Anne, Md.	8					High winds	Poles blown down; telephone service impaired	Official, U. S. Weather Bureau.
Pearland, Tex. (near)	12	5:15 p. m.	20		$10,000	Tornado	Buildings damaged; 1 person injured	Do.
Zavalla, Tex. (near)	12	5:30 p. m.	100	1		do	Everything in 1-mile path destroyed or damaged; 5 persons injured.	Do.
Center (near) to Tenaha (near), Tex.	12	6 p. m.	50	1	3,000	do	A number of buildings destroyed; timber lands damaged; 3 persons injured.	Do.
Nobile to Benson, La.	12	6 p. m.	200	1	[1] 16,700	do	Buildings and timber damaged; livestock killed; path 12 miles; a few persons injured.	Do.
Sabine and De Soto Parishes, La.	12					High winds	Timber and other property damaged	Do.

[1] Includes damage in Sabine and De Soto Parishes, La., by winds not tornadic (item following).

RIVERS AND FLOODS

By R. E. SPENCER

Rains from December 11 to 13 and again, in heavier falls, on December 16 and 17 over the area from Arkansas and eastern Oklahoma southward to Texas and the Gulf of Mexico resulted in moderate floods in the Ouachita and lower Black Rivers of Arkansas, and in the Sulphur and Trinity Rivers of Texas.

No direct losses were reported except in the Sulphur River section of Texas, where the total, largely in bridges, highways, levees, etc., amounted to $46,000. Property worth $140,000 was saved in this section through Weather Bureau warnings. On the Ouachita such advantage was taken of the flood warnings that no avoidable loss occurred; though damage done to winter pastures was considerable. The Trinity River rise was forecast accurately and well in advance, with resultant losses negligible and $7,000 saved in livestock and movable property.

[Dates in December except as otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI DRAINAGE					
Illinois:	*Feet*			*Feet*	
Peru, Ill.	14	[1]	3	15.9	Nov. 20.
	15	[2]		17.1	19.
Henry, Ill.	10	19	27	10.6	21-22.
Havana, Ill.	14	21	[2]	14.7	26.
Beardstown, Ill.	14	23	[2]	14.8	27-28.
St. Francis: St. Francis, Ark.	17	3	10	18.6	8.
		17	29	21.0	24.
Petit Jean: Danville, Ark.	20	18	19	20.6	19.
Black:					
Corning, Ark.	11	1	12	12.2	4-7.
		18	26	13.0	21.
Black Rock, Ark.	14	17	22	16.2	19.
Cache: Patterson, Ark.	9	20	30	9.6	23-25.
Sulphur:					
Ringo Crossing, Tex.	20	17	22	29.0	18.
Finley, Tex.	24	19	26	30.3	21.
Cypress: Jefferson, Tex.	18	20	26	24.2	21.
Ouachita:					
Arkadelphia, Ark.	12	17	19	19.7	18.
Camden, Ark.	30	20	25	34.9	22.
WEST GULF DRAINAGE					
Trinity:					
Dallas, Tex.	25	17	20	37.6	18.
Trinidad, Tex.	28	20	28	38.4	24.
Trinity, Elm Fork: Carrollton, Tex.	7	17	17	7.3	17.

[1] Continued from last month. [2] Continued at end of month.

MEAN LAKE LEVELS DURING DECEMBER, 1928

By UNITED STATES LAKE SURVEY

[Detroit, Mich., January 4, 1929]

The following data are reported in the Notice to Mariners of the above date:

Data	Lakes [1]			
	Superior	Michigan and Huron	Erie	Ontario
Mean level during December, 1928:	*Feet*	*Feet*	*Feet*	*Feet*
Above mean sea level at New York	603.00	580.63	571.74	245.80
Above or below—				
Mean stage of November, 1928	−0.39	+0.02	+0.01	+0.13
Mean stage of December, 1927	+0.68	+1.85	+0.13	+0.15
Average stage for December, last 10 years	+1.12	+1.45	+0.31	+0.68
Highest recorded December stage	−0.13	−1.95	−1.79	−1.81
Lowest recorded December stage	+2.75	+3.09	+1.35	+2.37
Average departure (since 1860) of the December level from the November level	−0.27	−0.22	−0.07	−0.07

[1] Lake St. Clair's level: In December, 1928, 574.98 feet.

EFFECT OF WEATHER ON CROPS AND FARMING OPERATIONS, DECEMBER, 1928

By J. B. KINCER

General summary.—During the first decade rains were beneficial in the Pacific Coast States and higher temperatures in the far Northwest were helpful, but much range land in the central Rocky Mountain district was snow-covered, necessitating considerable feeding of livestock. East of the Rocky Mountains the ground was generally bare of snow, except in some north-central districts. The persistently cold weather, with continued soft fields from previous rains, was rather unfavorable for outside operations in parts of the interior and the freezing temperatures in the Southeast killed tender truck as far south as parts of central Florida and did some local damage to citrus. Precipitation was still needed in some south Atlantic and Gulf sections, but elsewhere soil moisture was largely sufficient.

During the second decade frequent rains in many places, heavy in the Mississippi Valley States and parts of the Southwest, caused farm operations to be largely suspended, but elsewhere seasonal work made good advance and was generally up to an average year. Showers

were helpful in the South Atlantic and east Gulf States and in the west Gulf area and far Southwest weather conditions were mostly favorable, with mild temperatures and absence of storms permitting free grazing of livestock in the northern plains. West of the Rocky Mountains cold weather, and in some places snow, was rather hard on livestock, but the additional moisture was of benefit to desert ranges. No materially harmful temperatures occurred, though frost was general in California, necessitating some heating of citrus groves.

During the last decade weather conditions were generally favorable for agricultural interests, as there was an absence of stormy weather until near the close of the month, and most of the period was mild and sunny. Conditions favored livestock in the northern Great Plains with much ranging possible and the higher temperatures in the Southwest were likewise favorable. Rainfall was again deficient in the Southern States, especially on the Florida uplands, where it was very dry. There was no material harm from low temperatures, except that the interior of southern Florida had harmful frosts on the 29th. Snowfall was beneficial for winter grains in parts of the interior of the Northwest and in the main winter wheat belt a snow cover that was deposited about the close of the month furnished protection from the cold wave that overspread the interior of the country immediately thereafter. Husking and housing the remaining corn crop made mostly good progress and conditions favored scrapping the outstanding cotton.

Small grains.—The growth of winter wheat and other fall-sown grains was checked by the cold weather during the first decade that prevailed from the Mississippi Valley eastward and but little growth was made in the more western portions of the belt. The main wheat sections were generally bare of snow, but wheat apparently suffered little or no harm from the low temperatures. In the Pacific Northwest warmer weather, with showers, was favorable toward the close of the period and in the more eastern States winter grains continued in favorable condition, except that moisture was needed in parts of the south Atlantic area.

During the second decade winter wheat and other fall-sown grains made some growth under the influence of the abnormally warm weather and abundant moisture in the central and eastern portions of the belt. Aside from the extreme western districts, the ground over the major wheat-producing areas was practically bare of snow; in the Rocky Mountain States and eastern Great Basin wheat fields were mostly snow-covered, while in Montana there were beneficial amounts over most wheat districts. In the Pacific Northwest conditions were less satisfactory, but the weather favored winter grain crops in the Atlantic States and the South.

The winter wheat belt continued generally bare of snow until about the close of the last decade, but the prevailing temperatures were not materially harmful, although there were complaints of thawing and freezing locally in the Ohio Valley. In the western belt conditions continued favorable and at the close of the period there was rather widespread snow in many central and western districts. Precipitation in the Pacific Northwest was helpful for winter grains, but additional moisture was needed. In the Rocky Mountain States wheat continued mostly satisfactory, but rainfall would have been beneficial in the South; conditions were generally favorable in the middle Atlantic area.

Miscellaneous crops.—Pastures continued in poor condition in central Gulf sections, but the absence of snow cover in most northern parts from the Great Plains eastward was not serious, as no injury to meadows was reported. Livestock were able to range freely in the northern Plains area throughout the month, with a consequent saving of feed, and much range remained open in the Rocky Mountain region. Conditions continued mostly favorable in the Southwest, but heavy feeding was necessary in the Great Basin, due mostly to poor pasturage. Livestock held up well with only few losses and slight shrinkage reported.

Winter truck did well in most sections where grown, except that some frost injury occurred in Florida and adjacent sections during the first and last decades. Conditions were favorable for grinding sugar cane in Louisiana and generally excellent progress was made. There was some local frost damage to citrus in Florida during the first decade and some dropping due to dryness was reported toward the close of the month, but this crop did well generally. Some firing was necessary in citrus groves in California, but no injury occurred and development of the crop was mostly satisfactory.

WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

NORTH ATLANTIC OCEAN

By F. A. YOUNG

The weather over the North Atlantic during December presented few unusual features, with the possible exception of the very severe norther in the vicinity of Vera Cruz, Mexico, that will be referred to later. The number of days with gales was slightly below normal over the middle and eastern sections of the steamer lanes, and somewhat above west of the fiftieth meridian. Up to time of writing, no winds of hurricane force have been reported, although a few vessels encountered gales of force 11, as shown in table of gales and storms.

Judging from reports received, the number of days with fog was considerably below normal over the entire ocean, with the exception of the eastern part of the Gulf of Mexico, where it was observed on four days.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level, 8 a. m. (seventy-fifth meridian), North Atlantic Ocean, December, 1928*

Stations	Average pressure	Departure [1]	Highest	Date	Lowest	Date
	Inches	*Inch*	*Inches*		*Inches*	
Julianehaab, Greenland	29.53	([2])	30.36	6th	28.66	31st.
Belle Isle, Newfoundland	29.77	+0.07	30.50	5th	28.62	31st.
Halifax, Nova Scotia	30.00	+0.02	30.50	23d	29.12	29th.
Nantucket	30.08	−0.02	30.46	13th	29.32	18th.
Hatteras	30.12	−0.02	30.44	12th	29.72	18th.
Key West	30.10	+0.01	30.22	24th [3]	30.00	1st. [3]
New Orleans	30.16	+0.04	30.40	9th	29.90	17th.
Cape Gracias, Nicaragua	29.92	−0.06	29.98	27th [3]	29.84	23d.
Turks Island	30.10	+0.07	30.16	30th	30.02	9th.
Bermuda	30.20	+0.05	30.46	31st	29.90	28th.
Horta, Azores	30.29	+0.18	30.62	8th	29.88	16th.
Lerwick, Shetland Islands	29.82	+0.10	30.28	15th	29.24	10th.
Valencia, Ireland	29.99	+0.05	30.55	1st	28.94	10th.
London	30.02	+0.03	30.53	18th	29.14	30th.

[1] From normals shown on Hydrographic Office Pilot Chart, based on observations at Greenwich mean noon, or 7 a. m., seventy-fifth meridian time.
[2] No normal available. [3] And on other dates.